

REMARKS

Claims 1-20 have been canceled, claims 21-40 have been previously added. No claims have been added or canceled by way of this response. Claims 21, 23, 32 and 35 are currently amended. Thus, claims 21-40 are currently pending and presented for examination. Applicants respectfully request reconsideration and allowance of the pending claims in view of the foregoing amendments and the following remarks.

As a preliminary matter, in the Office Action, the Examiner contends that, "Negative sweep results in the direction of flow being rotated in a mathematically negative direction in order to achieve a coincidence of the direction of flow with respect to the instantaneous tangent of the blade surface." Applicants respectfully disagree with the Examiners characterization of negative sweep and submit that "negative sweep" is properly construed by the teachings of the specification as a whole in view of those skilled in the art.

Response to Objections:

The Examiner has objected to claims 23 and 32 for informalities. Applicants have amended the claims to correct the informalities and respectfully request that the Examiner withdraw the objections.

Response to Rejections Under Section 112:

The Examiner has rejected claims 21-40 under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants have amended claims 21, 32, and 35 to resolve any indefiniteness issues and respectfully request the Examiner reconsider and withdrawal the 35 U.S.C. § 112, second paragraph rejections.

Response to Rejections Under Section 102:

MPEP 2131 states "To anticipate a claim, the reference must teach each and every element of the claim." Furthermore, 37 C.F.R. § 1.104(c)(2) requires that the Examiner must identify the particular part of the reference relied upon and clearly explain the pertinence of each reference to the rejected claim.

Lings:

The Examiner has rejected claims 21-29 under 35 U.S.C § 102(b),as being anticipated by Lings (US 4,504,189).

Applicants claim 21 recites:

...wherein both the rotor-side and the stator-side ends each respectively have a negative sweep angle as measured between the instantaneous tangent of the blade surface and the fluid flow direction. [emphasis added]

The Examiner contends that Lings teaches the above element but does not identify where Lings recites this element. In contrast, Applicants submit that Lings is entirely silent as to teaching a negative sweep angle let alone “...both the rotor-side and the stator-side ends each respectively have a negative sweep angle....”

Moreover, the Examiner has concluded, “The rotor side end negative sweep is about 68 degrees. The stator-side end negative sweep is about 50 degrees.” Applicants respectfully request that the Examiner particularly identify where in Lings or how the Examiner has determined these values when Lings is entirely silent as to negative sweep angles in its disclosure.

As discussed above, Lings does not “teach each and every element” of applicants claims 21-29 as required by MPEP 2131, therefore Applicants respectfully request withdrawal of the § 102(b) rejection.

Liu:

The Examiner has rejected claims 21, 22, 24, 26-29, 32-33, 35 and 37-38 under 35 U.S.C § 102(b),as being anticipated by Liu et al. (US 2002/0141863).

Claims 21, 22, 24, 26-29:

The Examiner contends that figures 1-5 of Liu et al. teaches the above element of claim 21. Applicants respectfully submit that Liu et al. Figures 1-5 teach turbine blades without sweep, not the negative sweep angle as recited in Applicants claim 21 above. Moreover, the Examiner has concluded, “The rotor side end negative sweep is about 88 degrees. The stator-side end negative sweep is about 88 degrees.” Applicants respectfully request that the Examiner identify where in Liu et al. or how the Examiner has determined these values when Liu et al is entirely silent as to negative sweep angles in its disclosure.

Claim 32-33, 35 and 37-38:

Claim 32 recites, "...wherein the rotor-side end is inclined toward the delivery side and the stator-side end is inclined with respect to the fluid flow direction."

The Examiner contends that Liu et al. teaches "...the rotor-side end is inclined toward the delivery side and the stator-side end is inclined with respect to the fluid flow direction ... as seen in figure 3." Applicants respectfully submit that Liu et al., specifically figure 3, does not teach the stator-side end ... inclined with respect to the fluid flow direction as recited in claim 32. Liu et al. figure 3 shows a stationary blade curved in a tangential direction, but not inclined with respect to the fluid flow direction as recited in Applicants claims.

As discussed above, Liu et al. does not "teach each and every element" of applicants claims 21, 22, 24, 26-29, 32-33, 35 and 37-38 as required by MPEP 2131, therefore Applicants respectfully request withdrawal of the § 102(b) rejection.

Bessay et al.:

The Examiner has rejected claims 21, 22, 24, and 26-31 under 35 U.S.C § 102(b),as being anticipated by Bessay et al. (US 4,500,256).

The Examiner contends that figure 1 of Bessay et al. teaches the above element of claim 21. However, Applicants respectfully submit that Bessay et al. Figure 1 merely teaches a "...steam turbine whose streams diverge in the flow direction" (col.1 lines 49-50 and Fig. 1), not a turbine blade having both the rotor-side and the stator-side ends each respectively with a negative sweep angle as recited in Applicants claim 21 above. Moreover, the Examiner has concluded, "The rotor side end negative sweep for a stator blade is about 85 degrees. The stator-side end negative sweep for a stator blade is about 85 degrees." Applicants respectfully request that the Examiner identify where in Bessay et al. or how the Examiner has determined these values when Bessay et al. is entirely silent as to negative sweep angles in its disclosure.

As discussed above, Bessay et al. does not "teach each and every element" of applicants claims 21-29 as required by MPEP 2131, therefore Applicants respectfully request withdrawal of the § 102(b) rejection.

Sato et al.:

The Examiner has rejected claims 21, 22, 24, 26-31, 32-33, 35 and 37-40 under 35 U.S.C § 102(b),as being anticipated by Sato et al. (US 5,249,922).

Claims 21, 22, 24, 26-31:

The Examiner contends that figures 1-3, 8, 9, and 10b-10c of Sato et al. teaches the above element of claim 21. Applicants respectfully disagree and submit that figures 1-3, 8, 9, and 10b-10c of Sato et al. all fail to teach a turbine blade having both the rotor-side and the stator-side ends each respectively with a negative sweep angle as recited in Applicants claim 21 above. Moreover, the Examiner has concluded, “The rotor side end negative sweep for a stator blade is about 85 degrees. The stator-side end negative sweep for a stator blade is about 85 degrees.” Applicants respectfully request that the Examiner identify where in Sato et al. or how the Examiner has determined these values when sato et al is entirely silent as to negative sweep angles in its disclosure.

Claim 32-33, 35 and 37-40:

Claim 32 recites, “...wherein the rotor-side end is inclined toward the delivery side and the stator-side end is inclined with respect to the fluid flow direction.”

The Examiner contends that Sato et al. teaches “...the rotor-side end is inclined toward the delivery side and the stator-side end is inclined with respect to the fluid flow direction ... as seen in figure 2.” Applicants respectfully submit that Sato et al., and specifically figure 2, does not teach the stator-side end ... inclined with respect to the fluid flow direction as recited in claim 32.

As discussed above, Sato et al. does not “teach each and every element” of applicants claims 21, 22, 24, 26-31, 32-33, 35 and 37-40 as required by MPEP 2131, therefore Applicants respectfully request withdrawal of the § 102(b) rejection.

Response to Rejections Under Section 103:

Claim 34 stands rejected under 35 U.S.C § 103(a) as being obvious over Sato et al. and claim 36 as being obvious over either Liu or Sato. Applicants respectfully submit that claims 34 and 36 both are patentable at least for the reasons discussed in connection with the Section 102 rejections above, based in part on their dependence from allowable claim 32, and on their own merit. Applicants respectfully submit that these claims are patentable and respectfully request the Examiner to withdraw the Section 103 rejection.

Conclusion

For the foregoing reasons, it is respectfully submitted that the objections and rejections set forth in the outstanding Office Action are inapplicable to the present claims. All correspondence should continue to be directed to our below-listed address. Accordingly, Applicants respectfully request that the Examiner reconsider the objections and rejections and timely pass the application to allowance. Please grant any extensions of time required to enter this paper. The commissioner is hereby authorized to charge any appropriate fees due in connection with this paper, including fees for additional claims and terminal disclaimer fee, or credit any overpayments to Deposit Account No. 19-2179.

Respectfully submitted,

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